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THE GARDEN CALENDAR 28 1937

A radio discussion by W. R. Beattie, Bureau of Plant Industry, delivered in the Department of Agriculture period of the National Farm and Home Hour, broadcast over the NBC network, Monday, May 17, 1937.

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Hello folks. Our food habits have changed materially during recent years due to improved methods of production and transportation, especially during the winter or off-season periods. Today our markets are supplied with many fresh fruits and vegetables throughout the winter months. This has required a lot of careful investigation in order to overcome the many difficulties and losses that developed somewhere between the southern or southwestern producing centers and your dinner table. This has involved the control of diseases in the field and in transit and the problems of proper cooling and refrigeration in transit.

A notable example is found in the handling and shipment of southern grown strawberries to the northern markets. Take the Florida strawberries that are on our markets during the winter and early spring and the shippers were having no end of trouble a few years ago. The strawberry is just about as delicate and perishable as any commodity we handle long distances, and when you consider that it is about sixth in value among the fruit crops of the country you can readily understand the importance of having the crop properly handled. Well, to make a long story short, as I said, the Florida strawberry shippers were having a lot of trouble with their berries arriving at the markets in poor condition so two of our men, D. H. Rose and E. A. Gorman, Jr., who are connected with our Storage and Transportation Division, were assigned the job of finding out what was wrong and determining the remedy.

Prior to 1929 most of the Florida strawberry crop was shipped to market in heavy double-walled wooden cases known as pony refrigerators. These have a capacity of 32, 64 or 80 quarts and so constructed that ice is carried in a large pan at the top for refrigeration. Since 1929, due to rate adjustments, it has been more economical to ship the berries in crates in refrigerator cars. Florida, Alabama, Louisiana, Mississippi and Texas supply practically all of our early strawberries up until the time that Arkansas, Tennessee, Missouri, North Carolina, Virginia and Maryland come into the market. A few of our early berries are hauled to market by truck but the larger part are handled in refrigerator cars.

Our men found as would be expected that you must have well grown, firm berries that are free from soft spots or disease if you want to get to market in good condition. They found that a great amount of the difficulty was due to high fruit temperatures at the time of loading, and that the strawberries should be picked and loaded as early in the day as possible and not in the afternoon when the berries are hot. The berries should always be protected from the sun during the time that they are being transported from the field to the loading shed or car. Our men also found

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that high fruit temperatures in transit, that is around 50 degrees or higher, caused the berries to decay. Most buyers want the boxes of berries well filled and a high pack, and it was found that where the boxes were filled too high that the top layer of berries became crushed in the crates and mold developed on these damaged berries. So a new type of crate and box had to be designed that would permit of a fairly full pack and yet avoid crushing the top layer of berries.

In Florida it has been the practice to wash a part of the strawberry crop in water to which ice is added. This has the effect of cooling the berries quickly and in tests has showed no more decay than where the berries are packed and shipped dry. In other words it was largely a matter of getting the heat out of the berries as quickly as possible after picking and then sending them to market at a temperature at which rots and molds would not develop.

It is surprising how many angles there are to a problem of this kind. For example it was found that the size of the chunks of ice placed in the ice bunkers of the refrigerator cars had a definite bearing on the rapidity of cooling. If the ice was chopped too fine it prevented a free circulation of air and delayed the cooling, but after the load was cooled the ice could be chopped finer. Salt was used with the ice in order to secure rapid cooling and it was found that more salt should be added at the initial icing and the amount reduced after the berries were cooled. As a result of these experiments it is recommended that strawberries when leaving point of origin should have a temperature of 40 degrees or a little lower at the top and bottom doorway of the car. The main point is to get the berries cooled as quickly as possible. State workers and strawberry shippers can get the full report on these experiments by addressing a letter to the Superintendent of Documents, Washington, D. C. and asking for a copy of Technical bulletin No. 525, the price of which is ten cents.

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